93-00378/

Nova Scotia

ANNUAL REPORT

for the fiscal year
ending March 31, 1991

Department of the Environment

To His Honour
The Honourable Lloyd R. Crouse, P.C.
Lieutenant-Governor of Nova Scotia

May It Please Your Honour:

The undersigned has the privilege to present to your Honour the annual report of the Nova Scotia Department of the Environment for the fiscal year ending March 31, 1991.

Respectfully submitted,

John G. Leefe
Minister of the Environment

The Honourable John G. Leefe
Minister of the Environment
Province of Nova Scotia

Sir:

I have the honour to present to you the annual report of the Nova Scotia Department of the Environment for the fiscal year ending March 31, 1991.

Respectfully submitted,

Armand F. Pinard
Deputy Minister

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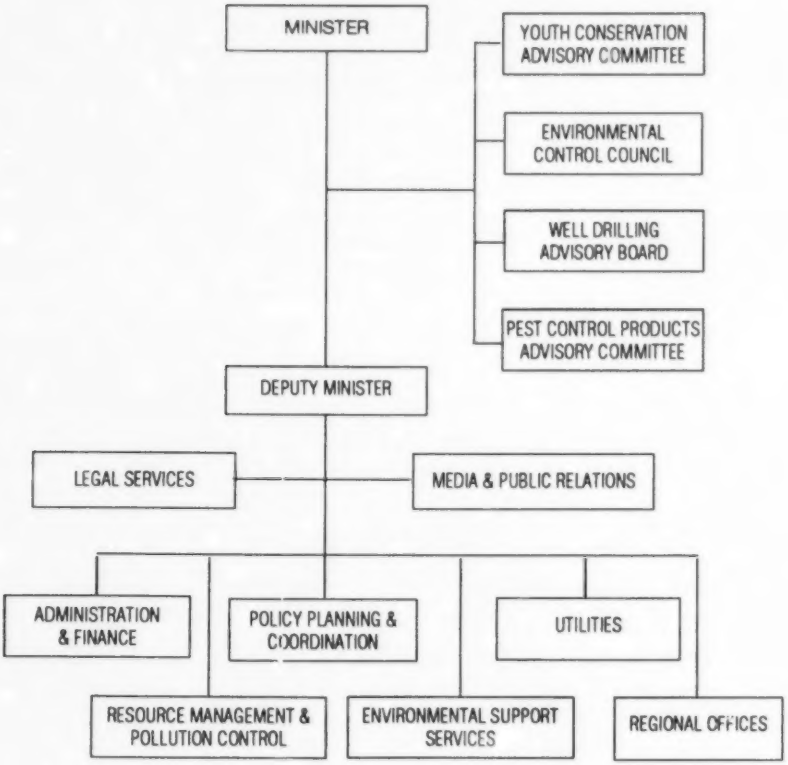
ORGANIZATIONAL STRUCTURE



DEPARTMENT FUNCTION AND ORGANIZATION

The Nova Scotia Department of the Environment was established in 1973 and is responsible for the protection of the provincial air, water, and land resources for the citizens of Nova Scotia and future generations.

The minister, under the Environmental Protection Act, is responsible for the supervision and control of management, preservation, and protective mechanisms to ensure efficient and non-destructive use of the province's renewable resources.

LEGISLATION

The department administers the following legislation:

Clean Nova Scotia Foundation Act
Dangerous Goods and Hazardous Wastes Management Act
Derelict Vehicles Removal Act
Environmental Assessment Act
Environmental Protection Act
Environmental Trust Act
Litter Abatement Act
Ozone Layer Protection Act
Pest Control Products Act
Recycling Act
Water Act
Well Drilling Act
Youth Conservation Corps Act

Asbestos Waste Regulations*
Dangerous Goods Storage Regulations
PCB Storage Regulations
Petroleum Storage Regulations
Waste Oil Regulations*
Derelict Vehicles Removal Regulations
Environmental Assessment Regulations
Environmental Assessment Hearing Regulations*
Public Hearing Regulations
Regional Municipal Solid Waste Management
Financial Assistance Regulations*
Water Quality Standards
(Suspension or Cancellation of Permit) Regulations
General (Suspension or Cancellation of Permit) Regulations
Herring Waste Burial Regulations
Biomedical Waste Incinerator Regulations
Delegation of Authority Regulations—EPA
Municipal Waste Incinerator Regulations
Gasoline Volatility Regulations*
Nova Scotia Environmental Trust Regulations*
General Litter Abatement Regulations*
Beverage Container Regulations*
Ozone Layer Protection Regulations*
Pest Control Products Licence and Permit Regulations

Pesticide Storage Regulations*
Resource Recovery Fund Regulations*
Municipal Sewage Works Financial Assistance Regulations*
Delegation of Authority Regulations, Water Act
Water Licence and Permit Regulations
Well Drilling Regulations

*New regulations passed during this fiscal year.

During 1990–91, the department developed and implemented the following regulations:

- Asbestos Waste Regulations detail the rules that must be followed when shipping, removing, handling, packing, and transporting asbestos. Asbestos must be packaged according to strict specifications, and vehicles transporting asbestos must carry special equipment and manifests. Disposal sites must be approved by the department. Effective August 1, 1990.

- Waste Oil Regulations require all waste oil to be tested before disposal or transfer. Waste oil collectors must be licensed by the department and are the only individuals with authority to receive waste oil, including contaminated waste oil. A schedule attached to the regulations defines contamination. Effective August 1, 1990.

- Environmental Assessment Hearing Regulations outline the format for public hearings conducted by the Environmental Control Council pursuant to the Environmental Assessment Act. Hearings are to be informal and of a non-judicial nature; all submissions are to become part of the public record. The regulations delineate the rules for pre-conference sessions, on-site visits, intervenor participation, hearing locations, notice of hearings, and media coverage. Effective December 1, 1990.

- Regional Municipal Solid Waste Management Financial Assistance Regulations list the components of municipal solid waste facilities eligible for departmental funding, such as solid waste studies, pollution control equipment, leachate treatment systems, and composting facilities. Funding conditions include comprehensive management plans, an examination of recycling and resource recovery options, and household hazardous waste management. Effective January 1, 1991.

- Gasoline Volatility Regulations establish that the Reid Vapour Pressure of gasoline imported, transferred or sold in Nova Scotia shall be no greater than 72 kilopascals during summer months. The effect of these regulations is to reduce ground-level ozone. Effective May 1, 1990.
- Nova Scotia Environmental Trust Regulations establish the reporting procedures for a board of trustees, the methods of payment, eligibility requirements, application procedures, and other rules necessary to administer this trust, which is dedicated to environmental protection and enhancement. Effective January 1, 1991.
- General Litter Abatement Regulations prohibit the release of litter into the environment and outline responsibilities for owners of buildings, contractors undertaking construction work, and operators of convenience stores, fast-food outlets, etc. The regulations require the provision of litter receptacles, and the clean-up of properties 50 feet beyond the property line and stipulate strict provisions for the placement of posters and other advertisements on utility poles and other structures. Shopping carts must be returned to retail premises, flyers on parked vehicles are banned, and shacks used for ice fishing must be removed at the end of the season. Effective August 1, 1990.
- Beverages Container Regulations establish a procedure for ensuring that beverages are contained in refillable or recyclable packages. An inspector may be appointed to enforce the regulations, and a timetable is set out for approving various types of beverages and their containers. The regulations establish minimum deposit rates, a registry system of approved containers, and designated depots. Effective September 15, 1990.
- Ozone Layer Protection Regulations require the capturing and recycling of refrigerants containing CFCs. A schedule is set out for mandatory recapture and recycling, as well as a list of products containing CFCs to be banned from import, manufacture, and sale. Effective February 15, 1991.
- Pesticide Storage Regulations describe the construction requirements and other safety measures for new pesticide storage facilities. Storage facilities must meet strict construction standards, storage requirements, and safety provisions. Permits are required, as is financial security. Contingency plans must be registered, and strict reporting and compliance monitoring must be carried out. Effective February 15, 1991.

- Resource Recovery Fund Regulations allow for the receipt of payments from designated industries whose products are deemed to contribute to the waste stream. The payments are placed in a fund that may be used for recycling and for other waste reduction programs. Effective September 1, 1990.
- Municipal Sewage Works Financial Assistance Regulations outline the application procedures and eligibility criteria, including qualifications and types of projects, for municipalities to receive funding. Effective August 1, 1990.

HIGHLIGHTS OF 1990–91

Sustainable Economic Development Agreement

This first-of-its-kind agreement was signed in March 1991 by the governments of Nova Scotia and Canada. The agreement, which targets small and medium-sized businesses, provides $15 million over four years to implement and promote the goal of sustainable development.

Contaminated Sites Agreement

In March 1991 the Canada–Nova Scotia Contaminated Sites Agreement was signed by representatives from the federal and provincial governments, including Environment Minister John Leefe. The agreement, which targets abandoned or 'orphaned' sites in Nova Scotia, will provide funds for clean-up, classification, and the development of new technologies.

Minister's Task Force on Clean Air

The Minister's Task Force on Clean Air was struck in January 1991. Membership was drawn from the environmental, academic, municipal, industrial, and government sectors. The task force was given a mandate to hold public hearings across the province to elicit concerns about local air quality. Hearings will take place in the summer of 1991, and the task force will report back to the minister with its recommendations in 1992.

Memorandum of Understanding on PCB Destruction

Atlantic environment ministers and the federal environment minister signed this memorandum of understanding on August 22, 1990. The ministers agreed to establish a temporary mobile incinerator to destroy PCB wastes from all four Atlantic provinces. The incinerator will operate at an efficiency rate of 99.9999 per cent destruction of PCBs and will be subject to federal and provincial environmental assessment processes.

Halifax Harbour Clean-Up

A joint federal-provincial assessment panel was appointed in November 1990 to review this project. This marked the first formal federal-provincial assessment to be carried out in Nova Scotia. A five-member panel was appointed to hold public hearings into this multimillion-dollar wastewater treatment facility. On completion of the assessment review, the panel will report back with its recommendations to both levels of government.

Gulf of Maine Action Plan

The Gulf of Maine Council approved this action plan and an accompanying monitoring program in November 1990. The plan is designed to respond to threats to the ecosystem of the Gulf of Maine, a valuable fishing ground located off the coasts of Nova Scotia, New Brunswick, Maine, New Hampshire, and Massachusetts. The two provinces and three eastern states are signatories to a 1989 agreement that pledges protection for this marine area.

OFFICE OF THE MINISTER AND DEPUTY MINISTER

The Office of the Minister and Deputy Minister functions as a critical clearing house for all new policies, programs, and regulations as well as a liaison with municipal, provincial, and federal agencies. This office recommends new environmental legislation to the provincial cabinet.

In February 1991, the department assumed responsibility for the Emergency Measures Organization, the provincial agency that provides for coordinated responses to disaster and emergency situations in Nova Scotia.

Canadian Council of Ministers of the Environment (CCME)
The Canadian Council of Ministers of the Environment (CCME) is the major intergovernmental forum in Canada for discussion and joint action on environmental issues of national, international, and global concern. Environment ministers from across Canada meet at least twice a year to exchange information, make decisions on CCME activities, and provide direction to government officials for work to be carried out under the auspices of CCME. Five permanent advisory committees exist: Air Advisory Committee, Water Advisory Committee, Toxic Substances Advisory Committee, Research Advisory Committee, and Communications Advisory Committee. The Honourable John G. Leefe was appointed president of CCME in November 1990.

Nova Scotia Environmental Control Council
The Environmental Control Council is an independent citizens' advisory board that advises the minister on environmental issues and represents the interests of the public in environmental decisions. In 1989, the council was given additional powers under the Environmental Assessment Act to hold public hearings on the environmental impact of projects referred by the minister.

The council presents annual awards in recognition of outstanding environmental achievement in seven categories: individuals, groups, organizations, education, youth, government, and industry. Details about the Environmental Awards and a copy of the council's annual report can be obtained from:

The Executive Secretary
Nova Scotia Environmental Control Council
P.O. Box 2107
Halifax, Nova Scotia
B3J 3B7 Phone: (902) 424-6387

Well Drilling Advisory Board
This industry-government advisory board was established under the Well Drilling Act to provide advice to the minister on regulations and standards for the industry. The board meets on a regular basis to discuss well drilling, helps the department examine applications and qualifications, and makes subsequent recommendations for licensing under the act. A sub-committee on licensing oversees the testing of licensees and advises the minister of its findings.

Pest Control Products Advisory Committee
Established in 1987, the committee currently has 17 members representing of a variety of sectors, including business, government, and agriculture. They provide advice to the minister on the development of regulations and policies pertaining to pesticide management.

LEGAL SERVICES

This section prepares new legislation, drafts, regulations, ministerial orders, tenders, and contracts, and provides legal advice to the minister, deputy minister, department officials, the Environmental Control Council, and the various other boards established by the department. This section has an important role to play in the area of environmental enforcement and prosecution in preparing court cases where charges have been laid and in civil cases involving the department.

MEDIA AND PUBLIC RELATIONS

Staff in this section respond to media inquiries for the department and oversee departmental advertising. This section issues news releases, organizes conferences, and maintains links with newsrooms across the province. Staff also play an important role in planning the province's participation in Environment Week and provide advice to groups and individuals in establishing their Environment Week projects.

ADMINISTRATION AND FINANCE

The Administration and Finance Division provides central services support to the department. Services include purchasing, financial records, facilities, and computer operations. In addition, the division maintains a central file registry and a specialized library on environmental topics.

POLICY PLANNING AND COORDINATION

The Policy Planning and Coordination Division coordinates the development and communication of long-range environmental policies and goals based on an effective consultation process, sound technical advice, and thorough background research. The division also provides research and policy analysis to support the development and negotiation of federal-provincial agreements and coordinates the preparation of ministerial and deputy briefing material and departmental responses to House orders and requests under the Freedom of Information Act. The division provides support for a number of important spin-off committees and organizations.

NOVA SCOTIA ENVIRONMENTAL TRUST FUND

A board of trustees for the Nova Scotia Environmental Trust Fund, representing the scientific and research community, industry, education, and environmental groups was appointed on November 1, 1990. The board of trustees recommends approval of donations and expenditures of the trust to the minister.

NOVA SCOTIA ROUND TABLE ON ENVIRONMENT AND ECONOMY

The Nova Scotia Round Table on Environment and Economy is a multisector volunteer group charged with the responsibility of implementing sustainable development in Nova Scotia. There are three sub-committees of the round table: Sustainable Development Committee, Public Participation Committee, and Environmental Education Committee.

The Sustainable Development Committee has been working towards the development of a Sustainable Development Strategy for Nova Scotia. Initially, the committee developed a communications package to seek public views on critical issues the strategy must address. The committee received 345 responses to the document. A toll-free telephone line was also installed to allow public input. A draft strategy will be available to the public, and workshops are planned.

The Public Participation Committee was established to improve opportunities for public participation in government decision-making and in private-sector decisions that affect communities and their local

environment. The committee has administered the development of a consultation report entitled *Channels for Public Input into Government Decision-Making in Nova Scotia* and is responsible for the publication of a directory of employees for the provincial Department of the Environment.

The Environmental Education Committee has been given the responsibility of developing recommendations for changes to public school curricula related to matters of sustainable development and environmental education. The committee has administered the development of a consultant report to compile a database of existing environment-related education programs and public and private-sector activities.

UTILITIES

This division is responsible for the operation and management of all provincially owned industrial water supplies and waste treatment facilities. These facilities include 11 water supply stations, one sewage treatment plant, and one industrial waste treatment facility.

Water-pumping stations include saltwater supply plants at Grand Étang and Lockeport, and freshwater supplies at Chéticamp, Port Hawkesbury, Canso, Pictou, Chester, Riverport, Lockeport, and Middle East Pubnico and Lower East Pubnico. A treated freshwater supply system is maintained at Lockeport.

Capital projects were carried out during the year:

- Modifications to the aeration system at Boat Harbour were completed.
- A new water well was drilled and put into production at Chéticamp.
- Motor control equipment was upgraded at the Canso Sewage Treatment plant.
- Major power and water distribution improvements were completed at the Landrie Lake plant in Port Hawkesbury.
- Anti-corrosion systems were installed at both the Lower East and Middle East Pubnico steel water storage tanks.
- The abandoned water-pumping stations at Riverport, Lunenburg County, and French Lake, Yarmouth County, were declared surplus and demolished. The sites were restored to original condition.

RESOURCE MANAGEMENT AND POLLUTION CONTROL

This division is responsible for developing regulations and guidelines, developing operational policies and procedures, training field staff, evaluating programs, conducting technical research, approving major permits, and providing consulting advice to regional offices. Resource Management and Pollution Control comprises five branches, each with clearly defined sections and responsibilities.

WASTE MANAGEMENT

Environmental Emergencies and Hazardous Materials

This section is responsible for developing programs, guidelines, and regulations in the area of hazardous materials. This includes regulating the control of dangerous goods and hazardous wastes, responding to environmental emergencies and remediating high-risk contaminated sites. The administration of the Dangerous Goods and Hazardous Wastes Management Act, and regulations pursuant to it, is overseen by this section.

The Petroleum Storage Regulations were enacted in February 1988, and the inspection and approval functions are now conducted at the regional level. As of March 31, 1991, there were 12,530 tanks registered, and 10,604 tanks remain in service. During the year, a detailed construction and installation procedure for above-ground and underground tanks was developed.

The PCB Storage Regulations were enacted in 1988. As of March 31, 1991, there were 51 approved storage sites at non-federal locations. The total amount stored was 122,857 L of liquid and 190,705 kg of solid material. During the year, a cooperative program with Environment Canada and the environment departments from the Atlantic provinces was implemented. This program is to locate a mobile PCB destruction facility in Atlantic Canada to destroy PCBs in the region and to remove the facility when the job is done.

The Waste Oil Regulations were enacted in 1988, and there are currently 21 waste oil collectors. These regulations have led to the development of a number of environment-related industries.

A contract for the development of a computerized system to manage the shipment of hazardous wastes was let. In conjunction, two sets of regulations covering the management of hazardous wastes were developed. During 1990, there were a total of 1,764 shipments manifested, 1,433,719 kg and 262,495 L of hazardous wastes. Disposal of hazardous wastes is also under the jurisdiction of this section. As of March 31, 1991, there were eight disposal sites for hazardous wastes at approved municipal landfills and at three industrial sites.

The Provincial Working Group on Emergency Response concluded meetings in March. As part of the working group's activities, a one-week emergency response workshop for hazardous materials was co-sponsored by the department and the Canadian Petroleum Products Institute. This project determined that the expertise and resources to conduct such training exist in Nova Scotia. Other hazardous materials training was conducted for various fire departments, and regional staff received training at the response level.

The department works with other provincial and federal agencies to provide a coordinated approach to chemical and oil spills and other accidents involving hazardous materials that require immediate response. Department staff from the Environmental Emergencies and Hazardous Materials Section designate disposal sites and recommend procedure for disposal. In Nova Scotia, all environmental emergencies must be reported to 426-6030 in the Halifax-Dartmouth metropolitan area or to 1-800-565-1633 elsewhere in the province.

Solid and Sewage Waste Management

This section oversees all municipal programs dealing with waste disposal, both solid waste and sewage, and with recycling. Staff provide technical assistance to municipalities and review all engineering plans for water and sewer construction/installations. This section also administers the Solid Waste Assistance Program, the Pollution Abatement Assistance Program, Resource Recovery Fund, Litter Abatement Act, Recycling Act, and the Derelict Vehicles Program.

Sewage Treatment

Under the Pollution Abatement Assistance Program, the section reviewed 174 applications for approval to construct water and sewer projects valued at move than $50 million in 1990.

The projects approved include pollution control studies that provide funding for the engineering assessment of various wastewater collection and treatment systems and the receiving water's assimilative capacity.

Pollution Control Study Grants

District of Chester	$ 5,304.04
East River Pollution Abatement System	13,500.00
Municipality of the County of Halifax	5,831.90
Town of Liverpool	10,881.36
District of Lunenburg	2,950.00
Town of Lunenburg	4,595.10
Town of Middleton	5,311.28
Victoria County	3,682.26
Total	**$52,055.94**

Sewage treatment plants, sewage lift stations, trunk collectors, and septic and sludge lagoons are eligible for 20 per cent capital assistance grants. Grants were paid to the following:

Capital Sewer Grants

Town of Liverpool	$ 5,909.70
Municipality of the County of Halifax	1,293,056.03
Town of Bridgewater	1,401,135.19
Town of Yarmouth	501,709.01
Town of Westville	48,195.08
Municipality of the County of Kings	15,759.69
City of Halifax	443,966.25
Town of Bedford	60,000.00
Municipality of the District of Yarmouth	319,562.25
Municipality of East Hants	1,124,799.00
District of Barrington	306,331.34
District of Chester	11,961.87
Town of Middleton	10,191.80
Municipality of the County of Pictou	120,000.00
Town of Mahone Bay	15,493.76
City of Dartmouth	22,000.00
Cape Breton County	63,000.00
Municipality of the District of St. Mary's	160,185.00
Total	**$5,923,255.97**

Solid Waste

There are approximately 35 dump sites operating in the province. The Province has adopted the Municipal Waste Incinerator Regulations, which require that all open-burning dump sites be closed by 1996. Since 1975, all municipalities have participated in a solid waste study designed to facilitate the development of environmentally acceptable waste management systems. This study program provides funding for the development of regional waste management plans, pre-design on three sites for the selected plan, and final design work. Twelve regional landfills and two incinerator systems have been developed, providing improved waste management for 75 per cent of the municipal waste generated in the province. Two existing landfills that have been operating for approximately 10 years are currently undergoing design modification to upgrade their operation and extend the life of the sites.

Solid Waste Studies

The Solid Waste Study Assistance Program granted financial assistance to the following:

Metropolitan Authority	$ 8,250.00
Inverness County	114,408.07
Chester	7,558.33
Antigonish County	49,505.04
Pictou	12,861.97
Metropolitan Authority	13,970.72
Kings County	19,537.10
Pictou County	5,094.85
Chester	19,449.89
Total	**$250,635.97**

Recycling

Subsequent to the proclamation of the Recycling Act in February 1990, the Resource Recovery Fund Regulations came into effect September 15, 1990. Under the regulations, industries whose products are associated with the wastestream contribute to the fund. In turn, monies from the fund, as recommended by the board of directors of the fund and approved by the minister, are allocated to municipalities and other groups to establish recycling and litter awareness programs.

As of March 31, 1991, the following monies were approved for expenditure from the fund:

Kings County Recycling Program Expansion	$ 72,593.34
Town of Middleton Curbside Recycling	7,156.00
Town of Bridgetown Curbside Recycling	7,800.00
Municipal Recycling Promotion Kit	3,000.00
Preliminary Recycling Market Study	4,000.00
Glass Transportation Subsidy	40,000.00
Total	**$134,549.34**

Industrial Cape Breton
Phase I of the Wastewater Characterization Study for the Industrial Cape Breton Sewage Abatement Program was completed in March 1991. Phase II, which will involve the implementation of the Flow-gauging and Wastewater Characterization Program, will provide an information base for the design and sizing of the sewer interceptor systems in the participating municipalities. Phase II will be completed in April 1993.

An oceanographic study will also be conducted to review the available hydrodynamic/water quality database, assess the database, and design an oceanographic study program (if required). It will be completed in January 1992.

Valley Pollution Abatement Program
Detailed engineering design work has been completed on each of the 11 treatment facilities that require upgrading or replacement. Upgrades to the existing Kingston and Nictaux facilities, as well as the construction of new treatment facilities at Greenwood, Lawrencetown, and Waterville, will be completed in 1992. The remaining projects are to be completed by 1993–94.

Derelict Vehicles Program
The Derelict Vehicles Program has proved very successful since it was established in the spring of 1988. Fourteen municipalities participated in 1990–91 and 500 derelict vehicles have been collected.

Industrial Pollution Control

This section is attached, through the Waste Management Branch, to the Resource Management and Pollution Control Division and is responsible for all industrial activities in the province. This section is also responsible

for the development of regulations and guidelines, as well as operations, procedures, and policies affecting Nova Scotia industry. Staff of this section provide considerable technical advice regarding numerous industrial activities to most sections, branches, and divisions of the department.

Permits

During 1990–91, 64 industrial waste permit applications were received by this section. Of these, 31 were processed by the section's staff, while 33 were handled at the regional level.

The more significant permits included:

- Westminer Canada Ltd.—lead/zinc mine
- Nova Scotia Power Corporation Point Aconi—cooling water system
- Michelin Tire—all three plants
- Mosher Limestone—all three limestone quarries
- Canso Chemicals Ltd.—chlorine/caustic plant
- Nova Environmental Systems Ltd.—oily water treatment plant
- Maha Industrial Petroleum Inc.—refinery
- Sydney Tar Ponds—incinerator
- Nova Scotia Power Corporation Point Aconi—wastewater treatment plant
- Nova Scotia Power Corporation Glace Bay—power plant
- Canadian Salt Co. Ltd.—salt manufacture

Industrial Impact Evaluations

Staff of this section are actively involved in the review of many of the projects which registered under the Environmental Assessment Act. Their involvement includes input into whether Class I projects require a full assessment, suggestions for terms of reference of both Class I and Class II projects, and a technical review of the sections of responsibility included in the proponent's Environmental Assessment Report.

The Section reviews all projects that, if released from the Assessment Act, will subsequently require an industrial waste permit. Reviews were conducted on the following projects:

- Kelrock Ltd.—limestone quarry
- T.G. O'Connor—sod and peat harvesting
- Enviro-systems Inc.—hazardous waste treatment facility
- Lafarge Canada Inc.—waste oil/spent solvents facility

- Point Tupper Properties Ltd.—terminals project
- D. P. Waste Disposal Ltd.—thermal oxidation facility
- Georgia Pacific—gypsum quarry
- S.W. Weeks—rock quarry
- Cabot Energy Corp.—coking plant and cogeneration facility

PESTICIDE MANAGEMENT

Licences

The licensing of professional pesticide applicators was the major focus of this branch's activities up to April 1, 1991. The licensing process will continue indefinitely as staff work with various industry organizations and academic facilities to license new pesticide-user groups.

Permits

As in past years, the Pesticide Management Branch continues to review certain pesticide projects and monitor pesticide applications taking place under permits issued by the department. Both the licence and permit programs have moved towards cost recovery.

Pesticide Storage Regulations

The introduction of the Nova Scotia Pesticide Storage Regulations on February 15, 1991, has resulted in comprehensive controls being imposed on the storage of *commercial* pesticides. These regulations, which have provided a model for other provinces contemplating similar legislation, require state-of-the-art storage by January 1, 1993.

Public Notification

This section introduced standard public-notification signage requirements for the use of pesticides in the landscape industry. Standard public-notification requirements will be examined for all pesticide industries in the coming year.

Integrated Pest Management Workshop

In conjunction with the Pest Control Products Advisory Committee, this branch co-sponsored a workshop on February 16, 1991, on Integrated Pest Management (IPM). IPM advocates the use of mechanical, natural, and biological methods of pest control as part of an overall strategy to manage pests. The workshop was well attended by representatives

from government, academia, the public, and user groups in the agriculture, forestry, and landscape sectors. As a policy, the branch will move to promote IPM actively at every opportunity.

AIR QUALITY

The functions and responsibilities of this branch include the development and implementation of air quality regulations and guidelines, as well as the delivery of air quality monitoring programs. The Air Quality Branch provides technical assistance to various levels of government, industry, and the public in order to promote the best use of provincial air resources. The branch develops emission criteria, as well as testing and monitoring programs for existing and proposed facilities. Ongoing studies and investigations are conducted by staff to address specific air quality problems.

During 1990–91 the branch was responsible for the implementation of two important sets of regulations, the Gasoline Volatility Regulations and the Ozone Layer Protection Regulations. The Ozone Layer Protection Regulations were developed in close consultation with the Ecology Action Centre, an environmental group based in Metro, and the Heating, Refrigerating and Air Conditioning Institute of Canada, which represents the service industry involved in the repair and maintenance of refrigeration units.

The CCME Nox/Voc Management Plan

This proactive report from the Canadian Council of the Ministers of the Environment was released in November 1990. It outlines a management plan dedicated to reducing Canada's nitrous oxide (Nox) and volatile organic compounds (Voc) emissions, which form the basis of ground-level ozone or smog. The plan is designed to meet Canada's international obligations with regard to these pollutants and calls on participation of the provinces in implementing 58 emission-reduction initiatives.

Acid Rain Report

The fourth annual Acid Rain Reduction Agreement Report was released in March 1991. The report indicates that an estimated 177,500 tonnes of SO_2 were emitted in Nova Scotia during 1990, a 19 per cent reduction since 1980. The Nova Scotia target for emissions of SO_2 is 189,000 tonnes by 1994.

Vehicle Emissions Clinic

In cooperation with federal officials from Environment Canada, a public clinic and an information campaign were launched during Environment Week 1990. Vehicles were inspected for pollution control equipment and exhaust emissions such as carbon monoxide, and hydrocarbons were measured in individual cars. The aim of the program was to educate the general public about the desirability of efficiently run cars in combatting air pollution.

WATER RESOURCES MANAGEMENT

Water Resources Services

The Water Resources Services Section is responsible for the development and delivery of services within four general program areas designed to promote the sustainable use and protection of Nova Scotia's surface and groundwater supply sources: 1) water supply investigations, 2) water resource impact evaluation, 3) water resource inventory and management support, and 4) water well management. Program initiatives for the year include the following.

Water Supply Investigations
During the past year approximately 50 per cent of hydrogeology staff time was devoted to the resolution of water supply quantity and quality problems of private citizens, industry, and government agencies. More than 500 investigations were carried out in response to requests for assistance to resolve individual well and water supply problems ranging from naturally occurring contaminants such as arsenic to man-induced problems such as elevated salt concentrations due to road-salting operations. In addition, a number of investigations were conducted to address various community and multiple-well water quality problems including:

- Well dewatering investigations, Point Aconi and Pugwash
- Organic chemicals contamination, Five Island Lake, Halifax County
- Leaking underground storage tanks, Shelburne, Barrington, Sydney River, and New Minas
- Sodium chloride (salt) contamination, Sydney River, Halifax County, Shelburne County, Hants County, and Yarmouth County
- Water supply development, Amherst and Kingston

As a further component of this investigative role, the section frequently carries out research and field studies into specific Nova Scotia water supply contamination issues.

- As part of a federal-provincial four-year study of agrichemicals in rural water supplies, a random survey was completed in the summer and fall of 234 wells in the intensively farmed area of Kings County. An interim report on this study was published in June 1990.
- The Section began implementing recommendations that resulted from an examination of road-salting operations conducted by the section and the Department of Transportation and Communications. Along with Transportation staff, section staff participated in a series of workshops designed to bring the problem to the attention of road maintenance operators.

Water Resource Impact Evaluation
Staff with the Water Resources Services Section contribute to departmental industrial waste permit reviews and assessments of effects of development proposals on water supply resources. These proposals include sanitary landfills, mining and quarry operations, highway alignments, and industrial plants. During the past year, 25 hydrogeological assessments were carried out under the department's environmental impact assessment process and as part of the review process for industrial waste permit reviews. Projects included:

- Westminer Canada Ltd., concentrator, Gays River, Halifax County
- Nova Scotia Power Corporation, ashfill, Trenton
- Inland Environmental Services Central Transfer Facility, Debert
- Municipal waste disposal proposals, Pictou County, Halifax County and Antigonish County

Water Resource Inventory and Management Support
The section is also responsible for compiling and distributing information on the quality and availability of groundwater resources throughout the province. Continued progress was made in computerizing well log information provided by drilling companies for each well constructed in the province. The system, which can retrieve information such as well yields and depth, now contains more than 33,000 well records dating back to 1977.

The section has also continued to operate 41 observation wells situated throughout the province to record fluctuations in water table levels. Work was once again carried out in the summer months to compile an inventory of water uses and users in the province.

Water Well Management

Approximately 50 per cent of the province's residents depend on wells for their water supply. To assure that water wells are properly constructed, for the protection of water users as well as of the groundwater resource, the section administers a licensing program for well diggers and drillers. In addition, the section provides a well inspection service to ensure all regulatory requirements respecting well construction have been met and to assist property owners in resolving water problems that may be attributable to well condition or design. During 1990–91, Department of the Environment well inspectors conducted more than 1,500 investigations.

Surface Water Management

The Surface Water Management Section's responsibilities and mandate are to:

- coordinate programs concerning water course alteration
- coordinate water use allocation programs
- review land development proposals
- coordinate water quality programs
- assist in the development of watershed management plans
- administer Canada–Nova Scotia water agreements.

Permits and Licences

The section coordinates the processing of all applications under the Water Act. These include permits and licences relating to water course alteration and withdrawal of water for municipal, industrial, agricultural, and other uses. Of the 603 applications received, 36 were for water use licences while the remaining 567 applications were for permits to conduct work directly in a stream or to alter the stream channel. In addition, 401 applications were received from forest operators and private woodlot owners wishing to install bridges or culverts on forest access roads. Most permits and some licences, while coordinated by the section, were processed at the regional level. In November, the minister signed a new fee schedule for water allocation rates for 1991.

Also, a number of long-standing disputes were resolved, including Fraser Lake, Halifax County; Indian Brook, Victoria County; and South River, Kings County.

Watershed Management
During the year, the department continued to participate on many watershed advisory boards and committees across the province. Staff met with a number of interested groups not previously involved in watershed management, including some in Mulgrave, Pictou, and Amherst, to discuss methods for greater watershed protection. Involvement continued with watershed management committees at Pockwock, Truro, and Lake Major. In addition, the section worked with other members of the Land Use Planning Committee to develop a watershed strategies handbook.

Land Development Reviews
Highway Alignments—A close liaison is maintained with the Department of Transportation and Communications staff to ensure that all roads, ditches, and drainage easements are environmentally acceptable. Major highway reviews in 1990–91 included:

- Sections of Highway 104 (review of Alma to Salt Springs and structures at Debert to the New Brunswick boarder)
- Micmac Panels
- Bear River Bridge
- Upper Stellarton Bridge

Transmission Alignments—The section worked with the Nova Scotia Power Corporation in the overall review of power transmission line alignment. In the fiscal year, two major lines were reviewed: Point Aconi to Woodbine and the East River Crossing to the Westray Mine.

Subdivisions—During 1990–91, the department's role in the municipal subdivision process was reviewed. An information brochure was developed outlining development requirements.

Internal Consultation—The section provided review and comments on proposals under the environmental assessment process and the industrial waste permit process. Major projects included the Nova Scotia Power Corporation Woodbine Substation, Black Gold Coal Recovery, Kelrock Limestone, and Nova Scotia Power Corporation Point Aconi Power Plant.

Water Quality Studies

In 1990–91, the section funded water quality sampling programs on lakes in the Metro area. One program included 28 Metro lakes while a second specifically dealt with Williams Lake. The section, along with an interest group in the Lake Ainslie area, began to investigate the lake's water quality and develop a local awareness in watershed issues. Study and investigation continued into the acid drainage problems, most notably the Bayers Lake Industrial Park and Mud Marsh in Halifax. Blair Lake, Cumberland County, continued to be sampled.

Federal/Provincial Agreements

Gauging of surface water streams in partnership with Environment Canada continued for the 16th year under the Water Quantity Surveys Agreement. The network consisted of 49 hydrometric stations and one sediment station. The Canada–Nova Scotia Flood Damage Reduction Program continued into its 12th year. This program is intended to reduce flood damage by identifying flood-prone areas and recommending measures to prevent or reduce damage.

ENVIRONMENTAL SUPPORT SERVICES

This division is responsible for administering the environmental assessment review process, investigations and enforcement, special projects, the Youth Conservation Corps, and the department's education and training activities.

ENVIRONMENTAL REVIEW

This branch is responsible for the administration and interpretation of the Environmental Assessment Act and the accompanying regulations.

Staff of the branch coordinate and manage environmental assessment of a wide variety of projects that include Class I undertakings (mining operations, quarries, hazardous waste treatment facilities, and projects involving interbasin water transfers) and Class II undertakings (large-scale power generation plants, oil and gas pipelines, and four-lane highways).

In 1990–91, the following projects were registered for review under the Nova Scotia Environmental Assessment Act.

- *Limestone Quarry*, Kelrock Ltd. Registered April 4, 1990. Undergoing assessment as of March 31, 1991.
- *Sod Peat Harvesting Project*, T.G. O'Connor. Registered April 17, 1990. Released under the condition that a study be conducted of the rare thread-leaved sundew plant, May 11, 1990.
- *Woodbine Substation*, Nova Scotia Power Corporation. Registered April 17, 1990. Undergoing assessment as of March 31, 1991.
- *Highway 107 Extension*, Nova Scotia Department of Transportation and Communications. Registered May 15, 1990. Undergoing assessment as of March 31, 1991.
- *Hazardous Waste Treatment/Reduction Facility*, Enviro-systems Inc. Registered June 26, 1990. Undergoing assessment as of March 31, 1991.
- *Waste Oil/Spent Solvents Facility*, Lafarge Canada–Systech Inc. Ltd. Registered July 31, 1990. Undergoing assessment as of March 31, 1991.

- *Highway 104, Masstown–Mahoney's Corner,* Nova Scotia Department of Transportation and Communications. Undergoing assessment as of March 31, 1991.
- *Highway 104, Alma–Salt Springs*, Nova Scotia Department of Transportation and Communications. Undergoing assessment as of March 31, 1991.
- *Thermal Oxidation & Recycling Facility,* D.P. Waste Disposal Ltd. Registered January 2, 1991. Undergoing assessment as of March 31, 1991.
- *Halifax Harbour Clean-Up,* Halifax Harbour Clean-Up Corporation. Registered January 2, 1991. Undergoing assessment as of March 31, 1991.
- *Sugar Camp Gypsum Quarry,* Georgia Pacific Corporation. Registered February 22, 1991. Undergoing assessment as of March 31, 1991.
- *Coking Plant and Cogeneration Facility,* Cabot Energy Corp. Ltd. Registered February 27, 1991. Undergoing assessment as of March 31, 1991.

INVESTIGATIONS AND ENFORCEMENT

Two full-time enforcement officers are assigned to this branch to coordinate investigations into suspected violations of the departmental acts and regulations, to provide investigative support to the department's solicitor and to special prosecutors, and to develop training and enforcement programs for department staff. During the 1990–91 fiscal year, department field officers, notably from the regional offices, received training in order to become special constables under the Police Act. The department also received the authority to issue summary offence tickets enabling special constables to act quickly and issue fines on the spot when faced with violations of environmental law. The net result of these advances has been to increase the department's enforcement capability greatly.

EDUCATION AND TECHNICAL TRAINING

The Education and Technical Training Branch was formed in February 1990, making 1990–91 the first full year of operation. The branch consists of a manager and two technical staff.

The major duties of the branch are divided between providing training for staff from the department and other levels of government, and providing speakers and environmental education material to schools and interest groups. During the year, Workplace Hazardous Materials Information System staff were involved in several training courses, including:

- Water Analysis
- Air Quality and Acid Rain
- Workplace Hazardous Materials Information System Training
- CPR and First Aid
- Driver Safety

The branch also held biweekly information sessions for department staff throughout the winter months.

To improve the operation of sewage treatment plants in the province, the branch ran several wastewater treatment plant operator training courses for municipal employees and department staff. Approximately 55 people took the courses, and several municipal operators went on to write the certification examinations.

A continuous demand for environmental education materials is placed on the branch by schools, students, and interest groups. To meet the demand from schools and students, staff put together a package containing material on nine major environmental topics. These were distributed to school libraries on request, as well as to other groups that would use the the material. Approximately 200 information packages were distributed during the 1990–91 fiscal year. There was also one mail-out updating the information package, and this was later expanded to include all schools in the province.

The branch also received a number of requests to visit schools and speak to students on environmental issues. More than 30 visits were made to schools during the year, and most visits included discussions with more than one class. The branch was also involved in continuing education at community colleges and night school. The branch put on nine courses on composting and several others on recycling.

The branch has several displays that it uses to present environmental information to the public. The displays include information on acid rain, household hazardous wastes, environmental issues, forest road construction, and erosion and siltation control. These are used at shows

such as the Shearwater International Air Show, during Environment Week, and at various trade shows and exhibitions.

YOUTH CONSERVATION CORPS

This year, its second year of operation, the Nova Scotia Youth Conservation Corps (NSYCC) Program included a summer phase and a winter phase. A permanent staff member was added to the program to administer the NSYCC for the department.

During the summer phase, 123 youth were employed in 25 communities around the province in paid productive work aimed at providing much-needed environmental services. The work varied from community to community and reflected the environmental concerns unique to each area. In general, the environmental services comprised clean-ups, park and trail maintenance/clearing, stream maintenance/clearing, recycling assistance, surveys and research projects, and environmental awareness projects. Examples include:

- illegal dump-site clean-ups at New Minas, Antigonish, the Sydney area (Forchu, Eskasoni), Richmond County (Babins Hill, Louisdale, Sporting Mountain), Guysborough County (Hadleyville, Sunnyville, Kenny's Beach), and Inverness
- beach and shoreline clean-ups at Yarmouth Harbour and surrounding areas, Pugwash, Antigonish (Mahoney's Beach, Cribbons Point), Sydney (Oxford, Cranberry, and Lochman beaches), Arichat Harbour, Petit-de-Grat, and Inverness. At Yarmouth, more than 500 bags filled with oil containers, plastic, garbage, rubber boots, gloves, and trash tossed overboard were collected
- general clean-ups including town beautification in Parrsboro and roadside clean-ups in Antigonish
- park and trail development at Waverley Game Sanctuary, Knox United Church Camp in Trout Brook, Two Rivers Wildlife Park near Sydney, Riverwood Wilderness Park in Stewiacke, Centennial Park in Port Hawkesbury, McFarlane Woods Nature Reserve in Mull River and Grant's Pond in Richmond County. At Hirtles Beach on the South Shore, the NSYCC assisted with sand-dune erosion prevention by putting up snow fencing among the dunes
- stream enhancement work, including the mapping of a 20-km stretch of River Phillip (including location and number of fish pools, historical research, and incidence of Dutch elm disease along the river),

tributary analyses of the Annapolis River (gauging levels of pollution and acidity), and river erosion monitoring in the Town of Antigonish

- recycling assistance, including sorting and preparing recyclable materials at the Town of Antigonish recycling depot and at the Keep Garbage Beneficial recycling depot in Pugwash
- The NSYCC carried out a number of surveys: a household water-consumption survey in aid of Middleton's pilot water conservation project, a clam population survey of the lagoon flats and monitoring of the endangered piping plover at Kejimkujik National Park Seaside Adjunct near Liverpool, fossil collection and research at University College of Cape Breton in Sydney, and loon surveys on various lakes around the province.

In addition to the projects described above, NSYCC employees also received valuable skills training, including courses in First Aid, Leadership (Group Dynamics), Environmental Issues (Composting, Recycling, and Household Hazardous Wastes Disposal), Search and Rescue, and Emergency Measures.

During the winter phase, 15 youth were employed in eight communities. The aim of the winter phase was to undertake program planning (including preparation of recruiting and promotional materials) and project development for the 1991 summer field season. As a result, a total of 232 project proposals were submitted by municipalities, federal and provincial government departments, industry, volunteer organizations, and concerned citizens from across the province.

Program funding for the NSYCC in 1990–91 came from the departments of Environment and Small Business Development (Provincial Employment Program).

REGIONAL OFFICES

EASTERN REGION

The Eastern Region encompasses all of Cape Breton Island and Antigonish and Guysborough counties. The regional office, located in Sydney, is supplemented by a district office in Port Hawkesbury. The mandate is to ensure a more efficient, localized response to environmental concerns and to be the first point of contact for residents and businesses in the area.

Major issues in the region include:

- Point Aconi Power Project, Point Aconi
- Pioneer Coal, Reserve Mines
- Sydney Tar Ponds Project, Sydney

Staff are involved in a number of solid waste management programs throughout the region with the City of Sydney and the counties of Richmond, Victoria, Inverness, and Antigonish participating.

Petroleum storage, water rights permits and a variety of new regulations provide staff with ongoing inspection and monitoring programs.

NORTHERN REGION

The Northern Region encompasses Colchester, Cumberland, and Pictou counties. The regional office is located in Truro, and it is supplemented by a district office in Granton, Pictou County.

The mandate of the Northern Region is to ensure an efficient, effective, localized response to environmental issues and to be the first point of contact for the public.

Major issues in the region include:

- Westray Coal Mine, Plymouth
- Rothesay Ltd., Truro
- Amherst Aerospace, Amherst
- Highway 104 construction

Staff are involved with petroleum storage, water rights permits, industrial operations, pesticides, and solid waste issues. New regulations require staff to perform various inspections and monitoring programs, including enforcement activities.

In addition, the regional office in Truro administers the Streambank Stabilization and Protection Policy on behalf of the department. This includes activities such as streambank protection, stream maintenance, and coastal erosion problems that occur throughout the province.

CENTRAL REGION

The Central Region covers the counties of Halifax and Hants and a portion of Lunenburg up to and including the Municipality of Chester. The mandate of the office is to ensure efficient and effective program delivery, environmental enforcement, and increased contact at the community level. In February 1991, this office relocated from downtown Halifax to Bedford.

The office is responsible for issuing permits under the Water Act, routine approvals under other legislation, inspection services, and answering complaints and inquiries from the public.

Staff are involved in a number of solid waste management programs throughout the region, including the monitoring of the Highway 101 sanitary landfill site and others.

WESTERN REGION

The Western Region encompasses Kings, Annapolis, Digby, Yarmouth, Shelburne, and Queens counties and the Municipality of Lunenburg. The regional office is located in Middleton, and it is supplemented by a district office in Yarmouth and a district office in Liverpool that was established in June 1990.

The mandate of the Western Region is to ensure quality, consistency, and efficiency in delivering departmental services and programs, provide a first point of contact for the public, respond to localized concerns and priorities.

Major issues in the region include:

- Parker Mountain Aggregates
- Surety Environmental Ltd.
- Rio Algom Tin Mine
- Laurence Sweeney Fisheries
- Digby Neck Quarry
- Clearland Dump
- Annapolis/Cornwallis Rivers Clean-up
- Annapolis Valley Sewage Treatment Plant Upgradings
- West Pubnico Golf and Country Club Ltd.

Staff are involved in regulating petroleum storage and waste oil collection; issuing permits, licences, and joint certificates of approval under the Water Act; and managing industrial waste, pesticide, and sewage and solid waste issues. In a regulatory role, staff perform various inspections, routine monitoring, and compliance monitoring, including investigation and enforcement activities.

Staff are participants in monitoring, steering, and liaison committees across the region. Staff conduct public education and awareness programs and represent the department at public information sessions.